Bank of Israel

Monetary Policy Report

Second Half of 2021

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According to the Bank of Israel Law, 5770–2010, the Bank of Israel has three objectives: (1) to maintain price stability, as its central goal; with price stability defined as an annual inflation rate of between 1 percent and 3 percent; (2) to support other objectives of the government's economic policy, particularly growth, employment and reducing social gaps, provided that this support shall not prejudice the attainment of price stability; and (3) to support the stability and orderly activity of the financial system.

In accordance with Section 55(a) of the Bank of Israel Law, 5770-2010, this report is submitted by the Bank of Israel to the government and the Knesset Finance Committee twice annually. The report surveys the economic developments that took place during the period covered by the report. It also surveys the policy required—in the view of the members of the Bank of Israel's Monetary Committee, the forum in which monetary policy decisions are reached—to maintain the inflation rate within the range set by the government and to achieve the other objectives of the government's economic policy. The economy's financial stability is surveyed by the Bank of Israel in its Financial Stability Report.

The Monetary Policy Report for the second half of 2021 was prepared by economists in the Research Department, within the guidelines set by the Monetary Committee. The report is based on data published up to the interest rate decision reached on January 3rd 2022, and therefore relates to the CPI up to November 2021.

Abstract

This report surveys the monetary policy during the second half of 2021 and the beginning of the first half of 2022.[1] During the six months being surveyed and following the exit from the third lockdown, the Israeli economy recovered rapidly, and it appeared that economic activity was returning to normal. This was in view of the vaccinations' efficiency, which led to a sharp decline in rates of infection and allowed for the loosening of restrictions on activity. Later during this half year, the Delta variant of the COVID-19 virus began to spread and the number of severely ill patients increased; this was alongside a third round of vaccinations. The economy coped with this wave of infection with a minimum of limitations relative to the previous waves. Nonetheless, there remained a high degree of uncertainty regarding economic activity, due to the COVID-19 virus and in particular the spread of the Omicron variant toward the end of the surveyed half year.

Monetary policy: The rate of interest was left unchanged at 0.1 percent during the second half of 2021. It was also decided to end the use of the special tools that had been announced by the Monetary Committee at the height of the COVID-19 crisis in 2020. In view of the continuing effect of COVID-19 on economic activity, the Bank of Israel purchased $34.8 billion during 2021. Thirty billion dollars were purchased in accordance with the decision of the Monetary Committee at the beginning of the year while the remainder was purchased in November–December after the Committee announced that intervention in the market would continue.

Domestic real activity: The data and indicators presented to the Committee during the period being reviewed indicated a relatively rapid pace of recovery in GDP and employment and that GDP is approaching the levels that would have been expected had there not been a COVID-19 crisis. This is after dealing with the three lockdowns imposed during 2020 and the first half of 2021 and with a fourth wave during the period being surveyed, which led to only relatively light limitations on activity. Nonetheless, as of the end of the half year reviewed, not all limitations have been lifted, and in particular there remain significant limitations on incoming tourism. After the approval of an outline that was to have allowed a marked increase of inbound tourism, the spread of the Omicron variant led to a considerable closing of the skies by the imposing of significant restrictions on activity at Ben Gurion Airport.

The labor market: The data from the Labor Force Survey for November (ages 15+) showed stabilization of the broad unemployment rate[2] at a level of approximately 6.5 percent, and an adjusted employment rate[3] of about 60 percent, compared to about 61 percent prior to the crisis, in 2019. The number of job vacancies during the half year being reviewed continued to rise, a continuation of the trend since the beginning of 2021. This phenomenon is characteristic of other advanced economies that experienced a rapid increase in the number of unemployed persons against the background of government policy regarding unpaid leave. With the easing of limitations and the rapid growth in GDP, new job vacancies were bring created, and are being filled at a relatively slow pace, which may indicate an increase in the structural unemployment rate.

1 Decisions were made on July 5th, August 23rd, October 7th, and November 22nd 2021 and on January 3rd 2022.

2 The broad rate of unemployment is the ratio of: the unemployed (the conventional definition of unemployment), the employed who are temporarily absent from work for the entire week for reasons related to the COVID-19 virus (including those on unpaid leave) and non-participants in the labor force who have stopped working due to layoffs or the closing of their place of work since March 2020, to total participants in the labor force aged 15+.

3 The rate of employment without absentees from work due to the COVID-19 virus.

Inflation: The second half of 2021 was characterized by a high inflation environment relative to recent years. At the beginning of the year, the annual rate of inflation entered the target range and subsequently continued to rise to above the midpoint of the target range and reached 2.5 percent. Toward the end of the year, it moderated somewhat to 2.4 percent. Inflation expectations for the coming year increased according to all sources, and are around the midpoint of the target range. However, there is a gap between expectations derived from the capital market and the lower forecasts by analysts and expectations derived from the banks' internal interest rates. It appears that this gap reflects the risk premium.[4] According to the various forecasts, the rate of inflation is expected to moderate somewhat but is expected to remain within the target range for all terms.

The exchange rate: The shekel was stable until the end of the first half of the year, both in terms of the nominal effective exchange rate and against the dollar and the euro, against the background of the approximately $25 billion purchased by the Bank of Israel. During the second half of the year—the one being surveyed—there was a trend of appreciation in the shekel. Also during this half year, there were high levels of foreign currency conversions by institutional investors and nonresident investors, which worked toward the appreciation of the shekel, and the pace of purchases by the Bank of Israel declined.

The global economy: During the half year being surveyed, the global economy continued to recover, against the background of the moderating rate of morbidity and an increase in levels of vaccination, which was accompanied by the removal of limitations on economic activity. At the same time, it appears that the momentum weakened due to problems in the global production chain and the rise in energy prices, which increases the risk of inflation, and a renewed outbreak of the pandemic. The global inflation environment remains high, and the inflation rate in most countries is above target. In the IMF's global growth forecast, at the beginning of the period being surveyed the growth rate for 2022 improved somewhat, and was stable during it; while the forecast for 2021 remained essentially unchanged during the half year being surveyed. So far, interest rates have been raised only in countries where inflation has deviated markedly from its target.

The credit market: During the half year being surveyed, interest rates remained stable at low rates. An examination of financing difficulties based on the Business Tendency Survey conducted by the Central Bureau of Statistics showed similar levels to those prior to the crisis—in contrast to the previous half year, in which small and micro businesses found it more difficult to obtain credit than during the pre-crisis period. At the same time, the credit constraints in the hotel industry remained significant during the surveyed period as well. The bank interest rates remained stable in all activity segments; therefore, and against the background of the economic recovery, the Bank of Israel ended programs that offered inexpensive sources of financing to banks for the providing of loans to small and micro businesses, which were intended to help businesses endure the COVID-19 crisis.

Developments in the financial markets: In the capital market, equity prices in the various sectors increased during the half year being surveyed. Corporate bond spreads also grew, although more moderately. The yields on 10-year Israeli government bonds declined at the beginning of the half year being surveyed and rose towards the end of it, similar to the global trend. Assessments from the Telbor market with respect to expectations of the Bank of Israel interest rate changed during the course of the reviewed half year, and

4 For an expanded discussion see Box 2 later in this report.

in the fourth quarter they increased to a level that implied a likelihood of 100 percent that there would be at least one interest rate hike of 15 basis points in the coming year (to 0.25 percent). That was the highest probability observed since the outbreak of the pandemic in March 2020. At the end of the half year there was a decline in those expectations, similar to trends in other countries.

Fiscal policy: The cumulative deficit continued to decline during the half year being surveyed, to 4.6 percent, due to the continued marked growth in tax revenues (even relative to the long-term trend), alongside a decline in government expenditure—the result of reduced COVID-19 expenditures and underperformance of the allocated interim budget, as well as a relatively slow increase in expenditure even after the approval of the budget. The proposed budget for 2021–22 received final approval by the Knesset at the beginning of November and contributed to reducing fiscal uncertainty. The new deficit targets are 6.8 percent for 2021 and 3.9 per cent for 2022, which are lower than the current deficit forecasts for those years.

The housing market: The trend of accelerating increase in home prices, which began toward the end of 2020 and intensified during 2021, continued during the period being surveyed as well. Home prices have increased during the previous 12 months by 10.3 percent (the figure for September-October). The Committee discussed the rise in home prices, which developed against the background of a reduction in the purchase tax for investors in July 2020 and the discontinuation of the Buyer's Price program. During the period being surveyed, new government programs went into effect that are intended to halt the marked increase in home prices, including an increase in the purchase tax for investors. Alongside these, the increase in rents remained relatively moderate for most of the period being surveyed, similar to the pace in the previous half of the year and a continuation of the notable moderation seen in 2020. Toward the end of the period being surveyed there was some acceleration—through November the Owner Occupied Housing Services Index had risen by an annual rate of about 2.9 percent.

The Research Department forecast: The Research Department published three forecasts during the period being surveyed, simultaneous with announcements of the interest rate–in July and September 2021 and in January 2022. According to the January forecast, GDP will grow by 5.5 percent in 2022 (it was 6.0 percent according to the July forecast) and the unemployment rate is expected to continue its decline to a level of about 4.8 percent in the fourth quarter, which is still above its pre-crisis level (of about 3.8 percent). The debt to GDP ratio is expected to be 69 percent in 2022 (74 percent according to the July forecast). Inflation during the next four quarters (the last of which is the fourth quarter of 2022) is expected to be 1.6 percent.

Policy steps

During the second half of 2021, the interest rate was left unchanged at 0.1 percent. During this half year, the Committee decided to discontinue the use of the special tools that it had announced at the height of the COVID-19 crisis in 2020. Until that decision, some of the tools were employed during the period being surveyed. In view of the continuing impact of the COVID-19 pandemic on the economy, the Bank of Israel purchased $34.8 billion during 2021. Thirty billion dollars were purchased in accordance with the Monetary Committee's decision at the beginning of the year, and the remainder was purchased during November–December after the Monetary Committee's announcement to the public of continuing intervention in the market.

At the end of the first half of 2021, the inflation rate had returned to within the target range, for the first time since mid-2019, and at the end of the year it was around the midpoint of the target range. The developments in inflation continued to be one of the main topics discussed during the period being surveyed. The Committee discussed the reasons for the rise in inflation, assessments regarding the transitory and permanent components of inflation, and the extent to which it is expected to persist. The Committee members noted in the November and January decisions that inflation in Israel is considerably lower than in many other countries and that it is located within the target range, as are expectations. They also noted that so far interest rates had been raised only by countries in which inflation has deviated significantly from its target while in Israel the expectations derived from the markets are located within the target range. Furthermore, according to the forecasts of the Bank of Israel Research Department and of analysts, the inflation rate is expected to be lower in another 12 months. During the half year, the Committee also discussed the state of real economic activity and the increase in GDP and employment data to around levels that would have been expected if not for the outbreak of the coronavirus pandemic, as well as the exchange rate, the accelerated increase in home prices, and global economic trends.

In the interest rate discussion in July 2021, the Committee members felt that, in view of the lifting of limitations and the recovery in the economy, there was now less need for the program to provide long-term loans to the banking system against loans provided to small and micro businesses and it unanimously decided that the employment of this instrument would be discontinued. Thus, the providing of loans to the banks at an interest rate of -0.1 percent ended as planned in June, and the providing of loans at an interest rate of 0.1 percent ceased at the end of July 2021, when utilization reached NIS 40 billion (in the interest rate decision of July 5th, the Monetary Committee decided that this part of the program would be discontinued on October 1st or when utilization reached its NIS 40 billion). The members noted that the Committee is constantly examining the market conditions and continues to use the other special tools for the crisis as necessary. Furthermore, the Committee discussed the increase in the inflation environment as manifested in the year over year inflation rate entering the target range, for the first time since mid-2019, and also the rise in inflation expectations. All six of the Committee's members felt that the interest rate should remain unchanged at 0.1 percent. They were of the view that the low level of the interest rate supports the continued recovery of economic activity. The Committee stated that it would continue to conduct a very accommodative monetary policy for a prolonged time, using a range of tools as necessary, including the interest rate tool.

The interest rate discussion in August 2021 focused on the increase in the number of critically ill patients and the spread of the Delta variant, alongside the ongoing campaign to provide a third vaccination. The Committee noted the high level of uncertainty with respect to the future spread and discussed the possible effects on economic activity if morbidity continues to spread and the government is called on to tighten limitations. All six members were of the view that the interest rate should be left unchanged at 0.1 percent, since in their opinion the low level of the interest rate supports the continued recovery in economic activity.

One of the Committee members stated that the strong National Accounts data and the increase in inflation could make it possible to gradually trim back the accommodative monetary policy; however, the renewed rise in infection calls for extra caution and leaving the interest rate at its current level for now. The Committee again declared that it would continue to conduct a very accommodative monetary policy for a prolonged time, using a range of tools as necessary, including the interest rate tool.

In the interest rate discussion in October 2021, five of the Committee members felt that the interest rate should remain unchanged at 0.1 percent, as the low level of the interest rate su0pports, in their view, the continued recovery of economic activity. The five believed that despite the fact that the economy is dealing with the current wave of infection without severe limitations on economic activity, there is still a high level of uncertainty regarding economic activity in the medium term, primarily in view of the risk of the cyclicality of additional waves of infection and also the uncertainty regarding the extent to which current inflation is transitory. The Committee noted that the continuation of economic activity and sound growth would make it possible to end the various quantitative easing programs in the coming months. In view of the economy's recovery, the Committee somewhat altered its declaration to say that it would continue to conduct an accommodative monetary policy for a prolonged time. It should be noted that one Committee member voted in favor of raising the interest rate to 0.25 percent. He felt this was feasible based on the economic data: the strong National Accounts data; the increase in the inflation environment and expectations, for all terms, which are anchored within the target range; and the increased financial risks.

At the interest discussion in November 2021[5], all six Committee members felt that the interest rate should be left unchanged at 0.1 percent as, in their view, the low interest-rate level supports the continued recovery of economic activity. The Committee members noted that in view of the increase in inflation expectations, the real interest rates in Israel are negative and similar in magnitude to those in major economies. They assessed that the process in Israel of economic recovery from the crisis is continuing, but that there are still challenges to economic activity. Therefore, the Committee decided to continue to conduct an accommodative monetary policy for a prolonged time, in accordance with the pace of growth, employment, and the path of inflation. This is in order to continue supporting the attainment of the policy targets and the recovery of the economy from the crisis, and to ensure the continued orderly functioning of the financial markets.

At the interest discussion in January 2022, all six Committee members agreed that the interest rate should be left unchanged at 0.1 percent. They felt that the economy is functioning adequately and that the data for the labor market in November and for the first half of December point to an improvement in the employment

5 Between the October and November decisions, the composition of the Committee changed: Professor Reuben Gronau left his position as a representative from amongthe public, and Professor Naomi Feldman replaced him in that position.

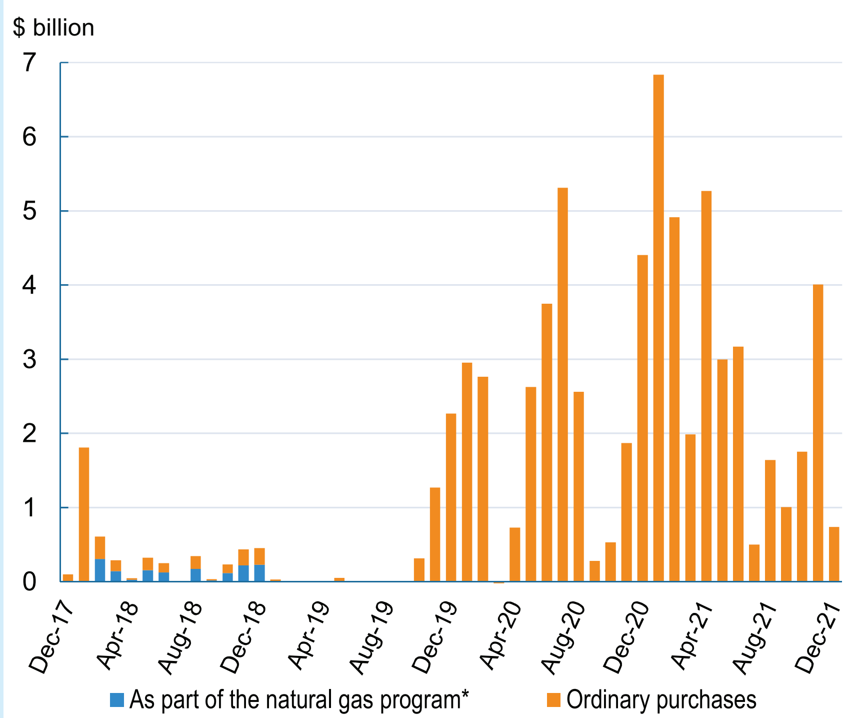
indices. Nonetheless, the Committee members agreed that the increase in the rate of morbidity and the reproduction number with the spread of the Omicron variant had increased the risk to economic activity, and that their magnitude were liable to reach levels that have macroeconomic consequences. These trends are leading to an increase in uncertainty in the short and medium terms regarding the magnitude of economic activity. In the discussion on the global economy, the Committee members discussed the problems in production and supply chains, and in the inflation indices—which in most countries had risen to above central bank targets and as a result monetary tightening continues in many economies.

During 2021, the Monetary Committee left the interest rate unchanged at 0.1 percent; however, in contrast to **the first half of the year, during which one of the members voted in favor of a reduction in the interest rate, during the second half of the year and more specifically in the October decision, one member voted in favor of raising the interest rate**. Recall that the Committee decided in April 2020 to reduce the monetary rate of interest by 0.15 percentage points (to 0.1 percent), and since then the interest rate was left unchanged. In the first four interest rate decisions of the first half of 2021 (January to May) five of the Committee members were of the opinion that the interest rate should remain at 0.1 percent while one was in favor of reducing it to zero. In the January and February decisions, he added that he does not rule out the possibility that in the future a more accommodative monetary policy would be called for and even a reduction of the monetary interest rate to a negative level. **The increase in the inflation environment in Israel, and the even larger one in the rest of the world, together with the improvement in economic indicators, led the Committee to the assessment that the accommodative monetary policy that has characterized policy for a long time will apparently continue; however, it will be less accommodative than previously thought, and the announcement to the public conveyed that message.**

In view of the continuing impact of the COVID-19 pandemic on the economy, the Bank of Israel purchased $34.8 billion during 2021. About $30 billion was purchased on the basis of the decision by the Monetary Committee at the beginning of the year, and the remainder was purchased in November–December after the Committee announced to the public that intervention in the market would continue. Up to the end of the first half of the year, the shekel remained stable both in terms of the effective nominal exchange rate and vis-à-vis the dollar and the euro, partly as a result of the purchases by the Bank of Israel in the amount of about $25 billion. During the second half of the year, which is being surveyed in this report, the shekel showed a trend of appreciation. Also during this half of the year, there were large conversions of foreign currency by institutional investors and nonresident investors, which worked to appreciate the shekel, and the purchases by the Bank of Israel were reduced. The goal of announcing the scope of the purchases ahead of time, in January 2021, was to provide the market with certainty as to the Bank of Israel's commitment to respond to the sharp appreciation at that time and thus to help endure the economic effects of the COVID-19 pandemic and in particular to support the export and import substitute industries. In the interest rate decisions in April and May 2021, the Committee added that the program would be expanded as needed, according to economic conditions and developments. During the second half of 2021, and against the background of economic recovery, the interest rate decisions stated that the Bank of Israel is not limited to a maximum intervention of $30 billion in 2021 and that at the completion of the program it would intervene in the foreign currency market at its discretion, taking into account the economic situation. And in fact it did act, at the end of the half year: in November–December it accelerated the pace of purchases against the background of the appreciation of the shekel, beyond the allocation of $30 billion specified in the program.

During the period being surveyed, the Bank of Israel purchased about a cumulative $10 billion: about $0.5 billion in July, about $1.5 billion in August, about $1 billion in September, and about $2 billion in October while in November the rate of purchases accelerated to about $4 billion, as mentioned above, in response to the appreciation of the shekel, and in December an additional approximately $0.7 billion was purchased. This is in contrast to the high rate of purchases that characterized most of the initial months of 2021, in which the Bank of Israel's cumulative purchases as part of its policy in the foreign exchange market totaled about $25 billion (Figure 1).

Figure 1
The Bank of Israel's Purchases in the Foreign Exchange Market
December 2017–December 2021



*The program to offset the effects of natural gas production on the exchange rate. SOURCE: Bank of Israel.

During the period being surveyed, the Committee decided to discontinue its use of the special tools that it had announced at the peak of the COVID-19 pandemic in 2020. Up until that decision, some of the tools were operated during the period being surveyed. Thus, the program to purchase government bonds continued until December while the inventory of the long-term monetary loans program increased up until August and following that remained unchanged. In the case of the other tools, i.e., the purchase of corporate bonds and the repo transactions for institutional entities, the inventory

did not increase during the period being surveyed (Figure 2). The discontinuation of the programs for purchasing government bonds and corporate bonds did not bring about an increase in yields, such that the convenient financing terms in the economy were maintained.

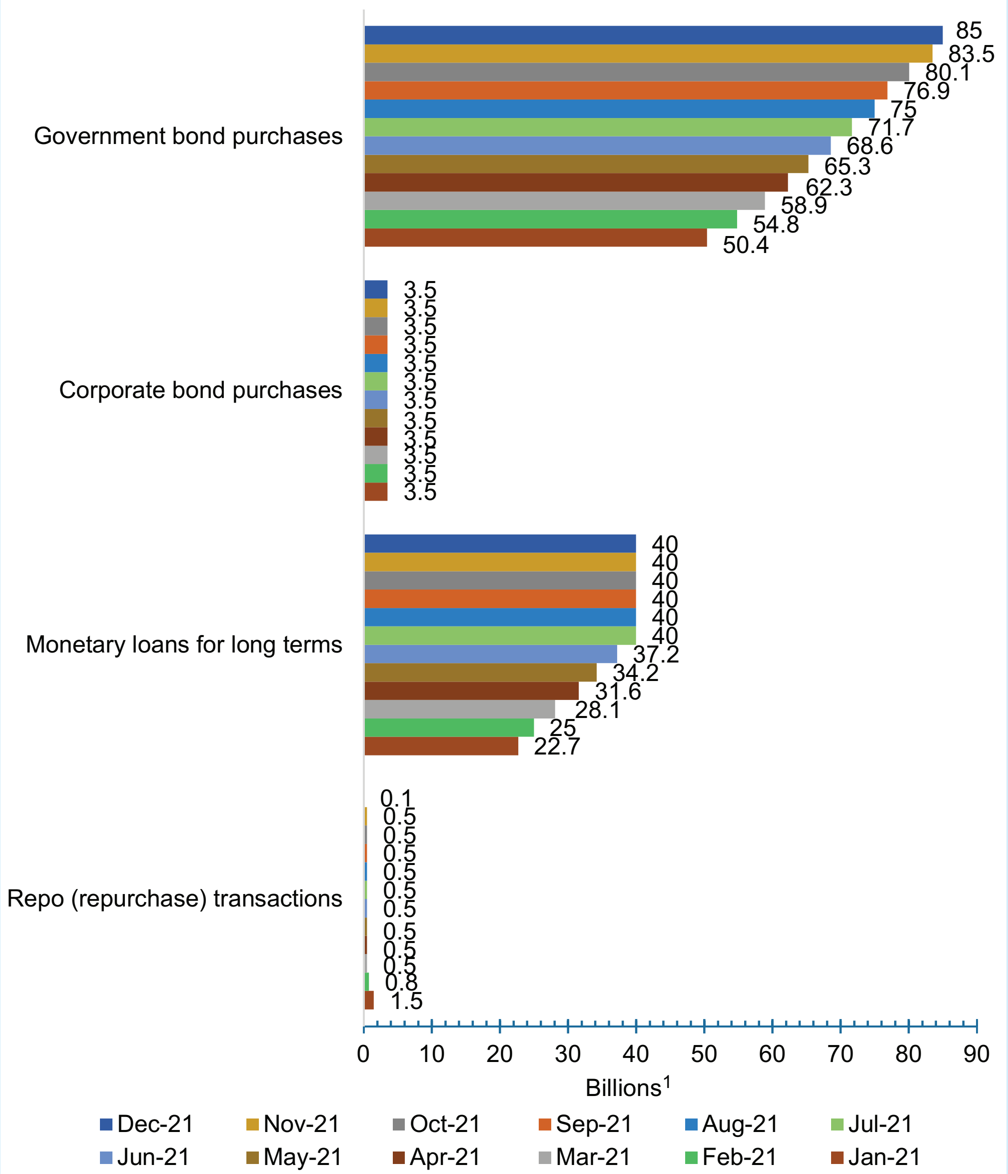
The purchase of government bonds in the secondary market: The Monetary Committee decided in November 2021 to discontinue the programs for the purchase of government bonds and corporate bonds in the markets during December and thus ended the programs to intervene in the bond markets that were announced during 2020. The program was first launched in March 2020, against the background of the Committee's assessment at that time that credit needs will remain high due to the persistence of the crisis and with that is the need for policy steps that would prevent potential future difficulties in the markets. In October 2020, the Committee decided to expand the program to purchase government bonds by NIS 35 billion to a total of NIS 85 billion. The total purchases by the Bank of Israel during the period being surveyed was about NIS 13.3 billion, and from the start of the program until the end of December 2021 purchases totaled about NIS 85 billion (Figure 2).

Purchases of corporate bonds in the secondary market: As noted, the Monetary Committee decided in November 2021 to end the programs to purchase corporate bonds in the markets during December. This tool was first employed in July 2020. The ratings of the corporate bonds that the Bank of Israel decided to purchase were A- and above. Its purchases through the end of November 2021 totaled NIS 3.5 billion and during the period being surveyed there were no new transactions (Figure 2). The goal of the Bank of Israel in utilizing this tool was to expand the possibility for large companies to obtain credit and to free up bank and non-bank credit for smaller companies. Against the background of the program, spreads narrowed and there was an increase in the amount of credit provided.

Repo transactions: This program was launched in March 2020 and through it loans were provided to institutional entities against collateral in the form of bonds. In the initial stage of the program, collateral could take the form of government bonds or makam only. In April 2020, it was decided that corporate bonds could also be used as collateral. During the half year being surveyed, no new transactions were executed. Thus, from July until November the use of this tool remained at NIS 0.5 billion, as it was at the end of the first half of 2021, and in December it even declined to NIS 0.1 billion (Figure 2).

Long-term monetary loans: This tool was launched in April 2020, and in October 2020 it was decided to add a new pillar to the program. In the final version of this tool, which was set to continue until the end of June 2021, the Bank of Israel provided the banking system with loans at an interest rate of -0.1 percent for a period of four years. The Committee decided to employ this focused nonconventional tool so that the support provided by the Bank of Israel would, to the extent possible, reach small and micro businesses. The goal was to provide them with some relief, based on the recognition of their importance to employment and economic activity. The providing of these loans to the banking system at an interest rate of -0.1 percent was thus against loans to small and micro businesses and on the condition that the interest rate on those loans would be convenient and would not exceed prime + 1.3 percent. The pillar that provided loans to the banks at an interest rate of -0.1 percent came to an end in June, as planned, and the layer of loans at an interest rate of 0.1 percent ended when utilization reached NIS 40 billion at the end of July 2021 (in the interest rate decision on July 5th, the Committee decided that this layer would end on October 1st or once usage reached the NIS 40 billion in the program). The total amount of monetary loans provided on these two tracks through the end of November 2021 was about NIS 40 billion, with no new transactions during the half year being surveyed (Figure 2).

Figure 2
The Bank of Israel's Main Policy Steps During the Crisis
End-of-month balances, January–December 2021



[1]Quantity denominated in shekels, other than dollar/shekel swaps that are denominated in dollars. SOURCE: Bank of Israel.

The background conditions from the Monetary Committee's perspective

1. Real economic activity in Israel and the labor market

The data and indicators presented to the Committee during the half year being surveyed pointed to a relatively rapid rate of recovery in GDP and in the labor market and indicated that GDP and employment are approaching the level that would have been expected if the COVID-19 pandemic had not occurred. This followed the effects of coping with three lockdowns that were imposed during 2020 and the first half of 2021 and with the fourth coronavirus wave during the period being surveyed, which was accompanied by relatively few limitations on activity.

Toward the end of the half year being surveyed, the fourth wave in Israel was in full decline, which included a drop in the rate of infection, in the reproduction number and in the number of severely ill patients. The economy coped with this wave differently than previous ones and there were no major limitations on activity. This was made possible by, among other things, the vaccination of the population, apparently including the positive effect of the third round of vaccination. Evidence of the ability to maintain uninterrupted economic activity alongside the COVID-19 virus can also be seen in the encouraging data for economic growth. However, as of the end of the half year being reviewed, not all of the limitations have been lifted, and in particular the significant limitations on incoming tourism remain in place. Thus, following the approval of the plan to facilitate an increase in incoming tourism, the spread of the Omicron variant led to major limitations on air travel, including restrictions placed on Ben Gurion Airport operations. Thus, there is still a high level of economic uncertainty in the intermediate term, primarily in view of the risk of further waves of infection (Tables 1 and 2).

The available indicators for economic activity show that toward the end of the half year there was no significant drop in economic activity and demand despite the increase in morbidity in the fourth wave of the COVID-19 pandemic. Total credit card purchases declined at the end of the half year reviewed, against the background of the spread of the Omicron variant, but they remain higher than their level of just before the crisis. With respect to incoming and outgoing tourism, the indicators show that the import of tourism, namely travel by Israelis abroad, is recovering while the export of tourism, namely tourists coming in to Israel, remained very low. According to the Business Tendency Survey conducted by the Central Bureau of Statistics, the total net balance of the business sector increased in December, and its level is highly positive. Goods exports (excluding ships and aircraft and diamonds, in dollars) declined slightly in November, but their level remains higher than that of just before the crisis. The upward trend in services exports continued, as did goods imports, with its level higher in all components (Tables 1 and 2).

Since the exit from the third lockdown in February 2021, there has been an increase in the adjusted rate of employment (according to which those absent from work due to COVID-19 are not considered to be employed), and the broad unemployment rate fell. This improvement was observed following the trimming back of support for COVID-19 victims. However, since August, the improvement in the employment indexes has slowed. The data from the Labor Force Survey for November (ages 15+) indicated stability in the broad unemployment rate at about 6.5 percent and in the rate of adjusted employment at a level of about 60 percent, in contrast to about 61 percent prior to the crisis (in 2019) (Figure 3). The number of job vacancies continued to rise in the half year being surveyed, which was a continuation of the trend since the beginning of 2021. This phenomenon also characterizes other advanced economies that experienced a rapid increase in unemployment against the background of their government's unpaid leave policy. With the easing of limitations and the rapid growth in GDP, new jobs have been created and are being filled at a relatively slow pace, which may indicate an increase in structural unemployment. According to the Business Tendency Survey, the shortage of workers continues to weigh on economic growth, particularly in the hotel industry, manufacturing (skilled workers) and services.

Table 1

National Accounts - data available at the time of the interest rate decisions

(seasonally adjusted data, quantitative rates of change compared to previous period, in annual terms)

Decision made in		**5/7/21**	**23/8/21**	**7/10/21**	**21/11/21**	**3/1/22**
GDP	2021:Q1	-6.2	-1.4	-1.4	-2.2	-1.9
	2021:Q2		15.4	16.6	13.7	14.2
	2021:Q3				2.4	2.5
Business sector product	2021:Q1	-7.2	-0.6	-0.8	-1.0	-0.5
	2021:Q2		19.8	22.0	17.1	17.6
	2021:Q3				0.1	1.0
Private consumption	2021:Q1	-3.4	0.0	0.1	-0.4	-1.0
	2021:Q2		36.3	39.2	33.5	34.2
	2021:Q3				0.7	0.7
Fixed capital formation	2021:Q1	-16.0	-10.3	-9.5	-8.8	-8.6
	2021:Q2		9.7	13.2	5.6	5.7
	2021:Q3				14.8	14.0
Exports excluding diamonds and startups	2021:Q1	24.8	15.1	16.1	10.3	12.7
	2021:Q2		14.0	15.7	10.2	9.1
	2021:Q3				0.6	3.0
Civilian imports excluding ships, aircraft, and diamonds	2021:Q1	7.2	14.1	14.8	12.0	12.9
	2021:Q2		17.6	19.5	11.1	15.5
	2021:Q3				-4.2	-0.8

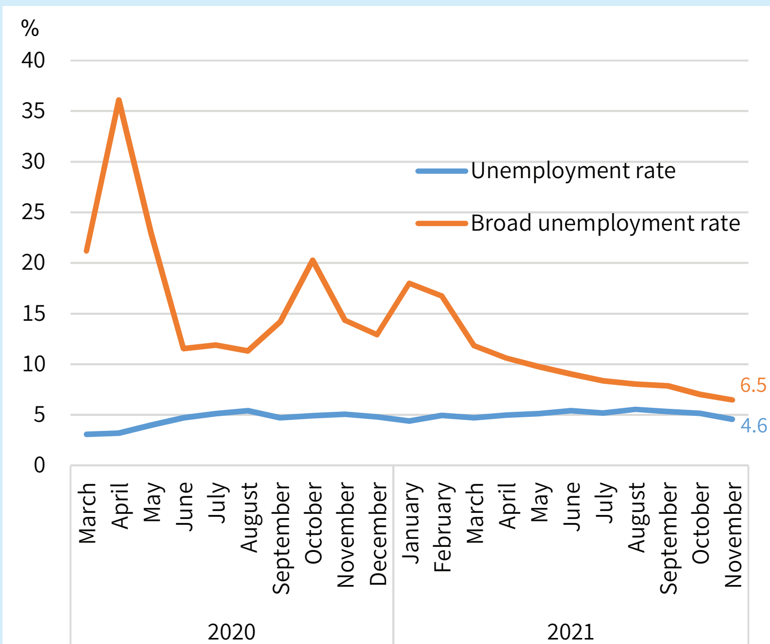
SOURCE: Based on Central Bureau of Statistics.

Table 2
Development of GDP, imports and uses
(seasonally adjusted data, quantitative rates of change compared to previous period, in annual terms)

	2018	2019	2020	2020:Q2	2020:Q3	2020:Q4	2021:Q1	2021:Q2	2021:Q3
GDP	4.0	3.8	-2.2	-31.8	39.6	10.6	-1.8	14.3	2.7
Business sector product	4.4	4.3	-2.7	-35.9	46.1	11.0	-0.4	17.9	1.3
Imports excluding defense, ships, aircraft, and diamonds	5.5	2.9	-7.3	-37.3	-3.4	94.4	12.9	15.4	-0.9
Private consumption	3.5	3.9	-9.2	-43.5	37.4	20.7	-1.0	34.6	0.9
of which : private consumption excluding durable goods	3.4	3.8	-9.8	-46.8	26.3	17.9	8.3	21.5	5.3
Public consumption	4.3	2.7	2.5	14.6	11.9	10.3	-12.1	0.8	-3.6
of which : public consumption excluding defense imports	4.7	2.6	2.7	7.9	18.6	13.0	-15.4	4.5	-6.1
Gross domestic investment	7.0	3.8	1.0	-50.0	32.3	59.7	-5.8	4.2	15.4
of which : in fixed assets	7.2	3.1	-4.0	-33.6	22.9	54.1	-8.6	5.9	13.8
Exports excluding diamonds	5.2	5.8	-1.0	-29.2	42.6	9.1	11.7	10.9	6.3
of which : exports excluding diamonds and startups	4.8	5.4	1.1	-29.6	45.7	5.5	13.0	9.3	3.2

SOURCE: Based on Central Bureau of Statistics.

Figure 3
The Unemployment Rate
March 2020–November 2021



SOURCE: Based on Central Bureau of Statistics.

2. The inflation environment

The second half of 2021 was characterized by higher inflation relative to recent years. At the beginning of the half year, the year over year inflation rate entered the target range and later rose to above the midpoint of the range (to 2.5 percent). Toward the end of the period, it moderated somewhat to 2.4 percent.

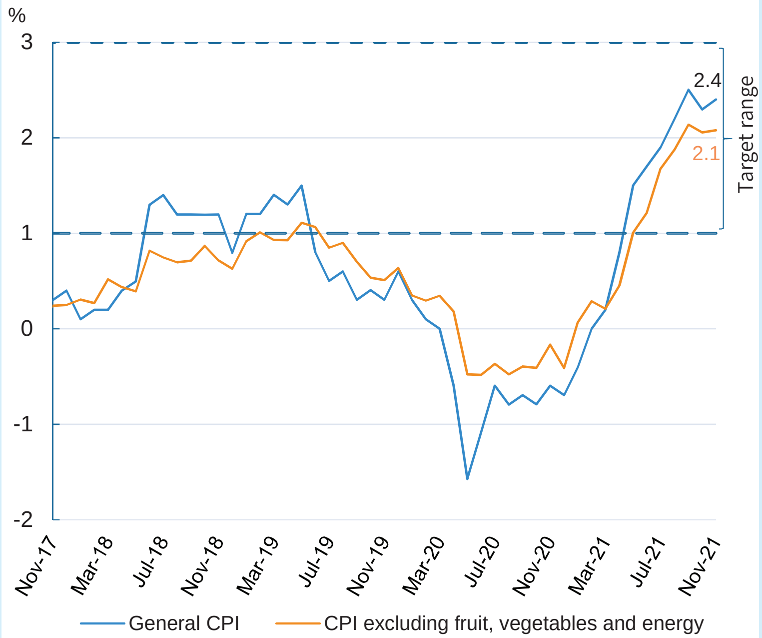
During the half year being surveyed, the Committee discussed the question of whether and to what extent the increase in prices is transitory or permanent. One-year inflation expectations from all sources have risen to the vicinity of the midpoint of the target range; nonetheless, there is a gap between the expectations derived from the capital market and the lower forecasts of the analysts and the internal interest rates of the banks, which apparently reflect the risk premium.[6] According to the various forecasts, the inflation rate is expected to moderate slightly in the future but it is expected to remain within the target range for all terms. A discussion took place of the inflationary factors and their degree of persistence. Thus, the global economic recovery, the lifting of limitations and the growth in disposable income have led to large waves of demand. At the same time, the supply side has recovered at a slower pace and has not yet fully recovered. As a result, we are witnessing disruption in global economic activity, which is accompanied by an increase in energy prices and delays in the various production and supply chains, which it is reasonable to assume are transient. These two processes, namely the sharp increase in demand and the problems on the supply side, have led to inflationary pressures around the world, and to a lesser extent also in Israel. It is important to emphasize that their magnitude and degree of persistence are still unclear. Nonetheless, the members of the Committee stressed that although the inflation rate in Israel has increased, it is still significantly lower than in many countries and it is within the target range, as are expectations, and therefore there is no concern that a surge in inflation will occur. Certainty with regard to wages has recently even increased as a result of a forward-looking “package deal” that regulates the rise in wages in broad sections of the economy.

An analysis presented to the Monetary Committee found that the acceleration of inflation in Israel is for the most part related to global factors. Another analysis showed that a significant part of the price increases in the US, which led to a sharp increase in inflation there, is focused on a small number of CPI components. The Committee believed that the degree to which the rise in global inflation is transitory will have an effect on the degree to which inflation in Israel is transitory, although at the same time the Committee recognized that inflation in Israel—both actual and expected—is far lower than in the US and other major blocs.

The inflation rate during the past 12 months (up until November 2021) was 2.4 percent. Net of the effect of energy and fruit and vegetables, inflation was 2.1 percent. The gap between these two indices is narrowing. Thus, at the height of the crisis, in May 2020, it reached 1.1 percentage points where the adjusted CPI was higher than the general one. By the end of March 2021, the gap had closed and changed sign (Figure 4). This occurred against the background of the increase in global commodity prices and the recovery in energy prices, which began in the second half of 2020 and continued into 2021, although towards the end of the half year being surveyed there were declines in energy prices (Figure 6).

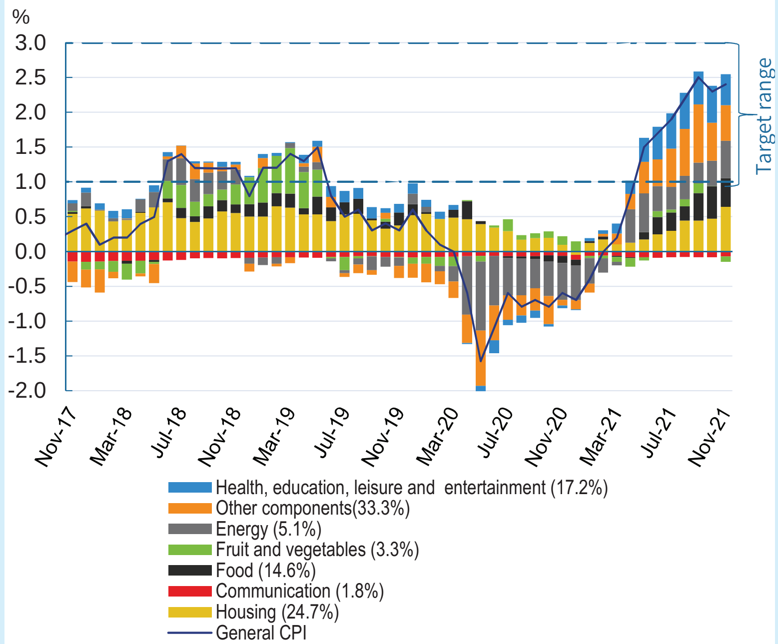
6 For further details, see Box 2 in this report.

Figure 4
Development of the General CPI and the CPI Excluding Fruit, Vegetables and Energy



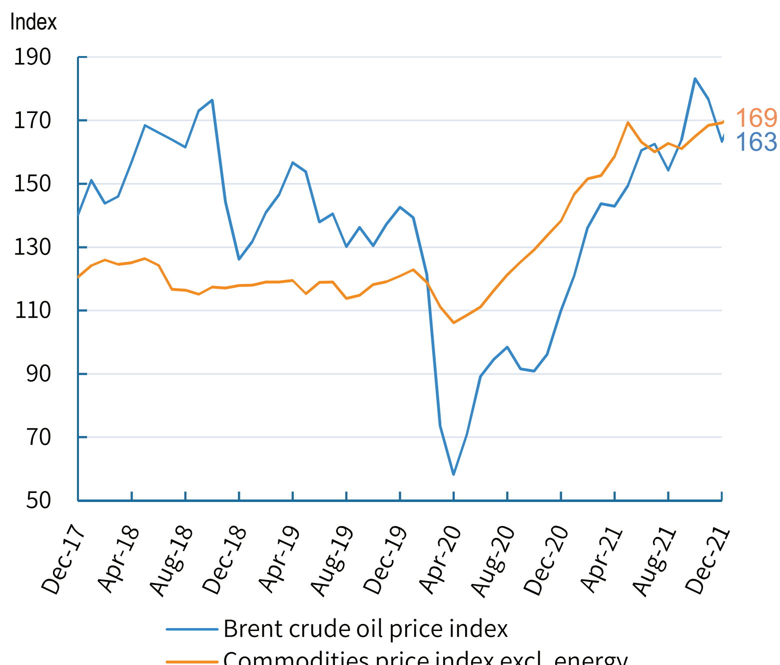
SOURCE: Central Bureau of Statistics.

Figure 5
Contributions of the Main CPI Components to Inflation[a,b]
November 2017–November 2021



[a] The number in parentheses is the component's weight in the overall CPI (as of 2021).
[b] Other components includes furniture and household equipment, clothing and footwear, miscellaneous, and the household maintenance and transportation components minus the subcomponents relating to energy prices. SOURCE: Based on Central Bureau of Statistics.

Figure 6
Indices of Commodity and Oil Prices
Monthly average, Dec. 2017–Dec. 2021, Index: 2009=100



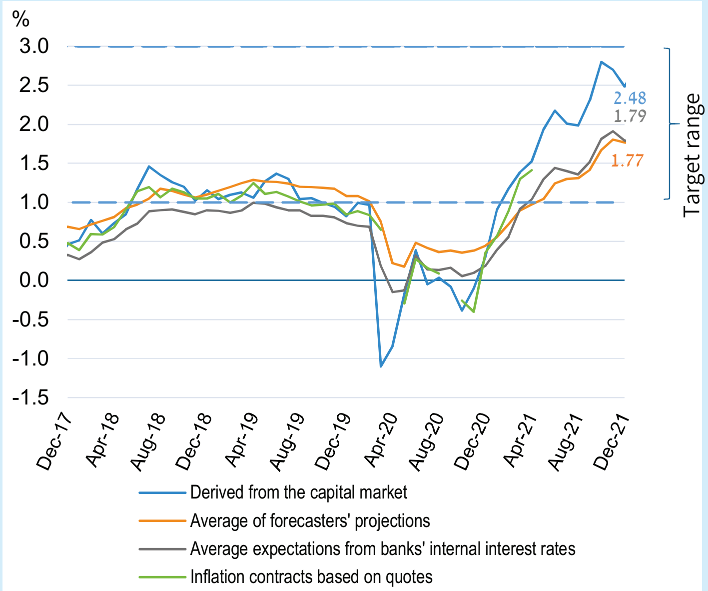
SOURCE: Based on Bloomberg.

The Committee members also considered the various indices of inflation expectations, which have been characterized by an upward trend during the last 18 months and which reflect an expectation that inflation will return to being anchored within the target range over time. The Committee members felt that the increase in inflation expectations can be explained by the upward trend in actual inflation, the rapid economic recovery in Israel, the improvement in the global economy and the increase in inflation expectations worldwide, the increase in prices of raw materials and sea transport, and accommodative monetary policy.

One-year inflation expectations according to all sources rose during the half year being surveyed and are located within the target range. The expectations from the capital market, which during the crisis (in 2020) reached negative levels, rose during the half year being surveyed and in December reached 2.5 percent. The short-term forward expectations (1–2 years forward) rose by 0.5 percentage points to 2.6 percent from the beginning of the half year being surveyed until December. These expectations for the intermediate and long term rose by about 0.6 percentage points from the beginning of the half year being surveyed until December and remained anchored above the midpoint of the target range (Figures 7 and 8). Nonetheless, the expectations derived from the capital market also include the risk premium.[7]

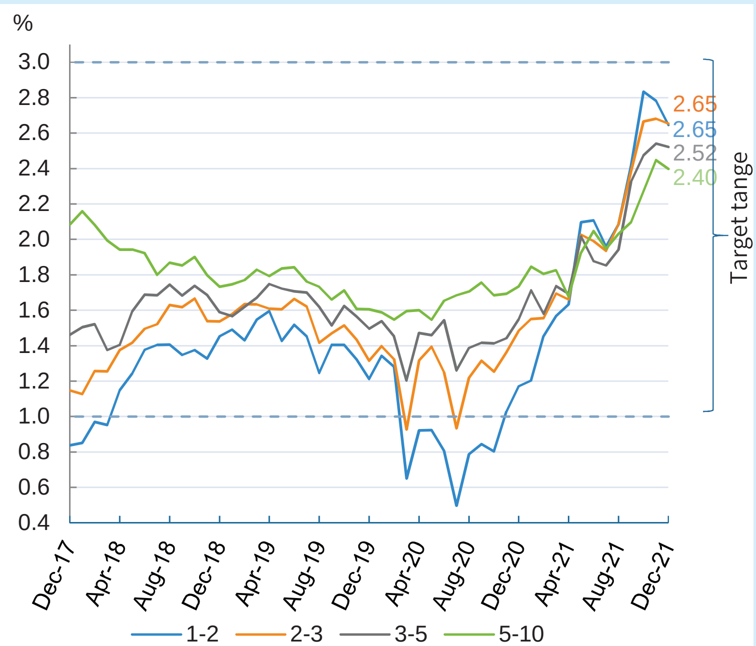
7 For further details, see Box 2 in this report.

Figure 7
One-Year Inflation Forecasts from the Various Sources[a]
December 2017–December 2021



[a] Monthly average.

Figure 8
Forward Inflation Expectations Derived from the Capital Market[a]
December 2017–December 2021

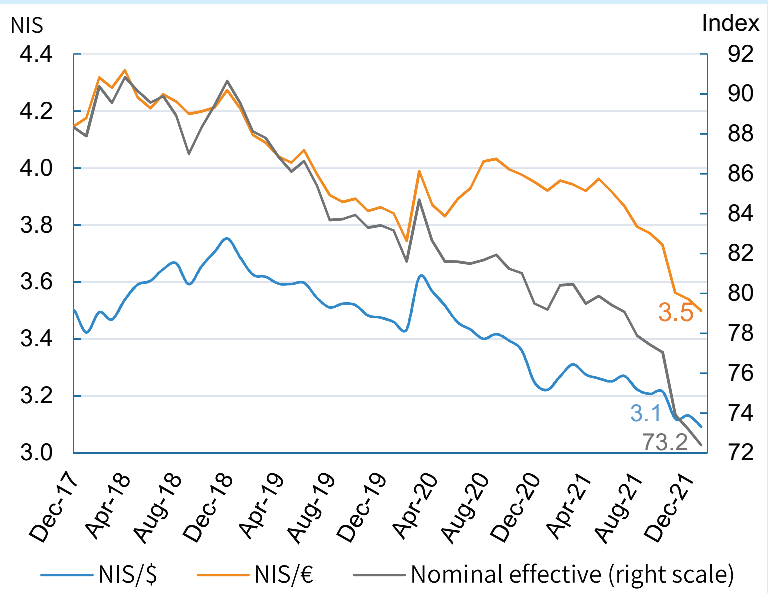


[a] Monthly averages. SOURCE: Bank of Israel.

3. The exchange rate

In view of the persistent effects of the COVID-19 pandemic, the Bank of Israel purchased $34.8 billion during 2021. Up until the end of the first half of the year, the shekel remained stable both in terms of the nominal effective exchange rate and against the dollar and the euro, partly due to the purchases carried out by the Bank of Israel in the amount of $25 billion. During the second half of the year, which is being surveyed here, the shekel was characterized by a trend of appreciation. Also during the second half of the year, there were large conversions of foreign currency by institutional investors and nonresident investors which acted to appreciate the shekel, and the rate of purchases by the Bank of Israel declined. For the second half of the year as a whole, the shekel appreciated by 4.6 percent against the dollar, by 9.2 percent against the euro and by 7.9 percent in terms of the nominal effective exchange rate (Figure 9).

Figure 9
Selected Exchange Rates
Monthly averages, December 2017–December 2021



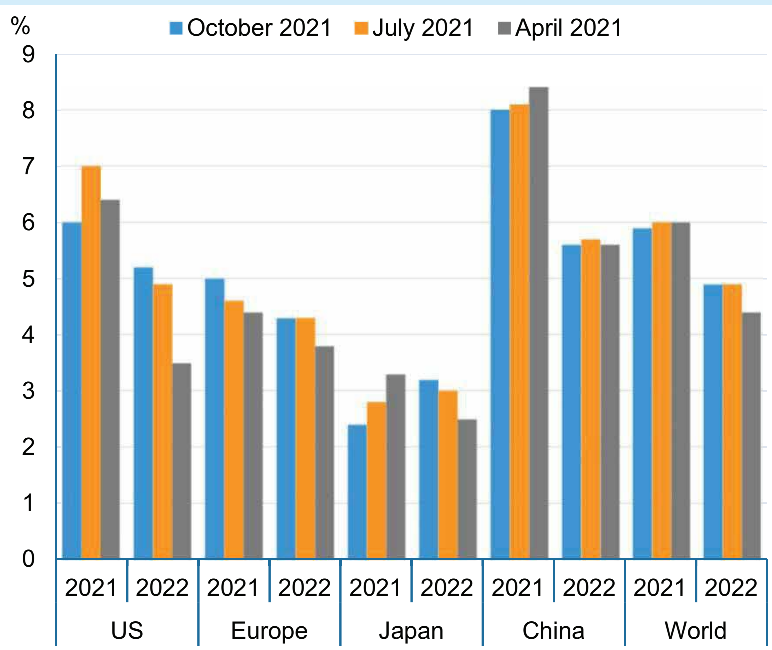
SOURCE: Bank of Israel.

4. The global economy

During the half year being surveyed, the global economy continued to recover due to declining morbidity and increasing vaccination rates, which were accompanied by a lifting of limitations on economic activity. Nonetheless, it appears that the momentum has weakened due to the difficulties in the global production and supply chains and the rise in energy prices, which increase the risk of inflation, as well as a renewed outbreak of the pandemic.

At the beginning of the half year being surveyed, the IMF's global growth rate forecast for 2022 improved somewhat, and it stabilized later on in the year. Meanwhile, the forecast for 2021 remained basically unchanged during the period being surveyed. If we break down the growth forecast for 2021 according to blocs, a decline was forecasted for the US and Japan and an increase for Europe (Figure 10). The Purchasing Managers Index for the advanced economies moderated as well during the half year reviewed, although the levels of economic activity remained high. The leading equity indices in the US and Europe declined during the period being surveyed, following moderate increases at the beginning of the half year. Oil and gas prices rose significantly during the half year being surveyed.

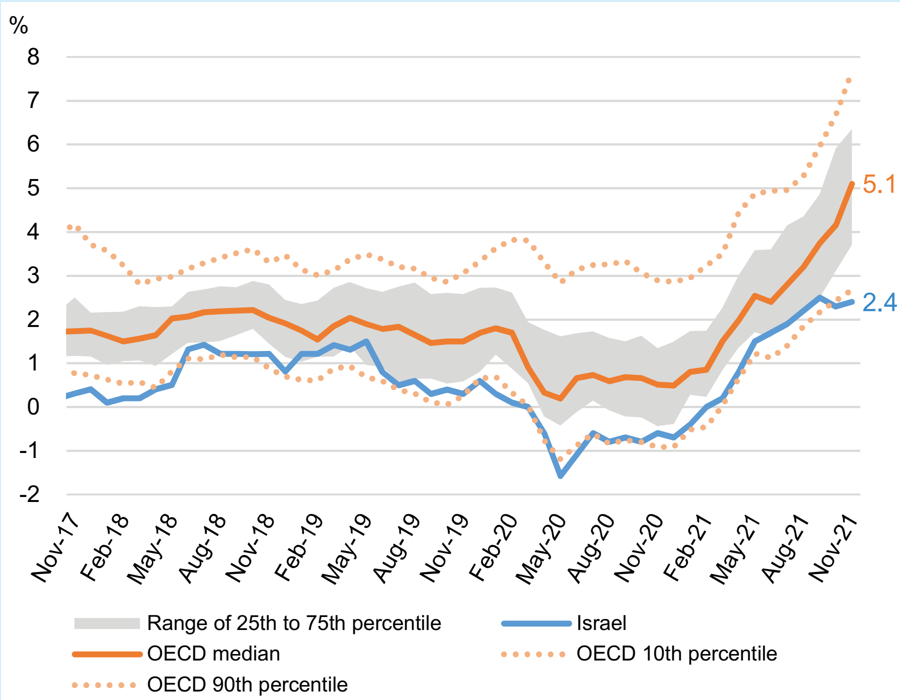
Figure 10
IMF Annual Growth Forecasts for 2021 and 2022



SOURCE: The International Monetary Fund.

Global inflation remains high (Figure 11). The inflation indices in many countries are at high levels and inflation rates in most of them are above the inflation targets. In the US, the year over year inflation rate rose during the half year being surveyed and in November 2021 the overall index rose by 6.8 percent while the core index rose by 5 percent. In the eurozone, the rate of inflation reached 4.9 percent in November while the core index rose by 2.6 percent. As in Israel, there is also a gap between the inflation forecasts of analysts and the higher forecasts derived from the capital market.

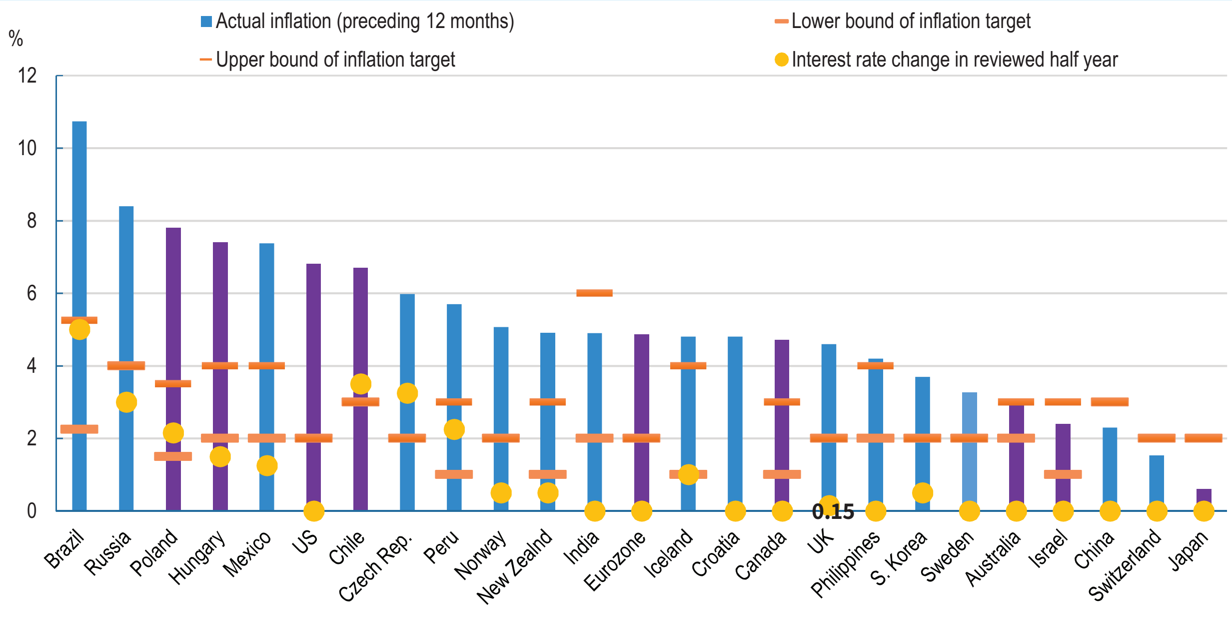
Figure 11
Annual Inflation in Israel and the OECD
November 2017–November 2021



SOURCE: Based on OECD.

Accommodative monetary policy, which in 2020 characterized most major central banks, was maintained in both the first and second halves of 2021, but toward the end of the second half central banks began to signal somewhat of a trimming back of this policy. In the US, the Fed left the interest rate unchanged and reduced its purchase program toward the end of the half year being surveyed. In December, the Fed announced that three interest rate increases are expected in 2022, which followed its announcement in November that there would only be one, while in October the forecast of the first interest rate hike was brought forward to the end of 2022. Furthermore, in response to the COVID-19 pandemic, the Fed adopted a policy of liquidity expansion in the US financial system by means of bond purchases. In November, Fed officials announced a plan to reduce purchases by about $15 billion each month. In December, it announced that it would further cut back on purchases to $30 billion per month. In the eurozone, the ECB left the interest rate unchanged, but in September announced its intention to somewhat slow its purchase program. In the UK, where there was a significant increase in inflation, the Bank of England increased the interest rate to 0.25 percent in December. The Committee members pointed out that up till now there have been interest rate hikes only in countries where inflation has deviated significantly from its target, while in Israel the expectations derived from the markets are located within the target range (Figure 12).

Figure 12
The Inflation Target, Actual Inflation, and the Change in Central Bank Interest Rates In Israel and Advanced Economies



Blue: Countries that did not announce tapering, as of January 3, 2022.
Purple: Countries that did announce tapering, as of January 3, 2022.
Upper and lower bounds appear where there is an inflation range.
In other countries, the inflation rate is vis-à-vis the inflation target.
SOURCE: Based on Central Bureau of Statistics, OECD, Bloomberg, and central bank websites.

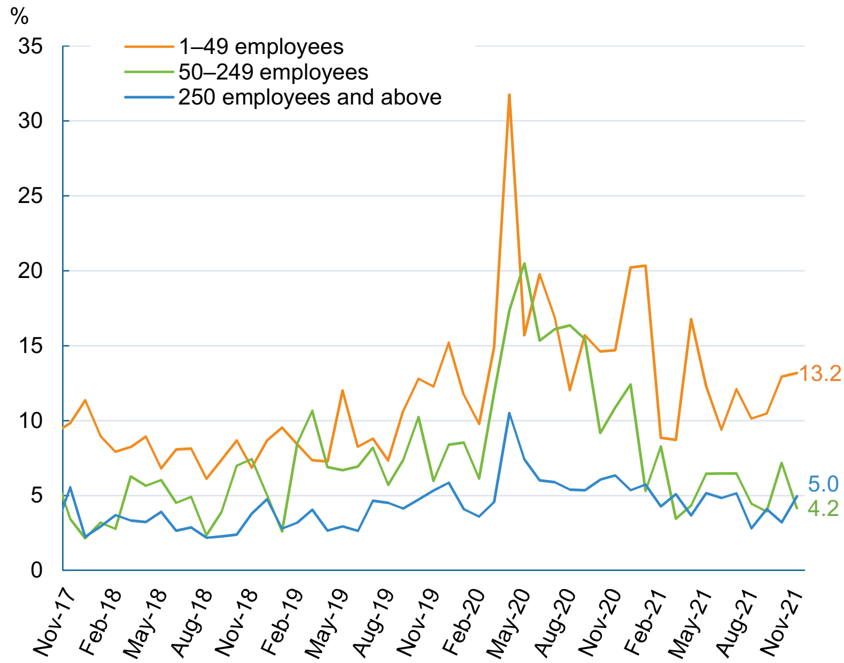
5. The credit market

During the half year being surveyed, the credit market functioned well, with stable interest rates at low levels. With respect to difficulties in obtaining financing, the Central Bureau of Statistics' Business Tendency Survey showed levels similar to those prior to the crisis. The level of difficulty encountered by businesses in obtaining credit diminished and currently it is similar to pre-crisis levels (Figure 13). This is in contrast to the first half of the year, in which the difficulty in obtaining credit among small and micro businesses was greater than prior to the crisis. At the same time, the credit constraints in the hotel industry were still high during the half year being surveyed. The bank interest rates on credit remained stable in all segments: consumer credit, housing credit, business credit, commercial credit and small business credit. Against this background, and in view of the economic recovery, the Bank of Israel discontinued programs that offered the banks inexpensive sources of financing in order to provide loans to businesses, with the goal of helping businesses endure the COVID-19 crisis.[8] Among the government assistance funds, the weight of the "Hotels, Accommodation and Catering" industry in the Fund for Small Businesses at High Risk is larger than in the Fund for Small Businesses not at risk. A sample of the financial statements of public companies in the airline, hotel and tourism industries for the second quarter points to continuing losses as a result of the crisis. The proportion of bank credit for which payments have been deferred as part of the COVID-19 crisis

8 For further details, see the Monetary Policy section in this report.

arrangements out of total credit to the public (the individual and business sectors) continued to decline during the half year being surveyed, which was a continuation of the trend in previous periods. The deferrals that remained were concentrated in housing debt and the debt of large businesses.

Figure 13
Constraints on Businesses in Obtaining Bank Credit[a]
November 2017–November 2021



[a] Out of survey participants. The numbers on the axis indicate the share of business owners who reported a severe constraint in obtaining bank credit.
SOURCE: Based on Central Bureau of Statistics.

6. Developments in the financial markets

Equity prices in the various sectors rose during the half year being surveyed, as did the spreads on corporate bonds, although to a more moderate extent. The yields on 10-year government bonds in Israel fell at the beginning of the half year being surveyed and rose towards the end, which was similar to the global trend (Table 3). In the corporate bond market, spreads began to increase somewhat from their historically low level at the beginning of the half year. Thus, investors purchased corporate bonds at negative real yields, and risk spreads approached their pre-crisis levels. The positive momentum in share issues continued and was led by technology; in the bond market the pace of issues rose in the real sector. With respect to mutual funds, the accumulation continued to be focused on risky assets. The debt of the business sector also continued to grow in the half year being surveyed, which was a continuation of the high pace in the trend from the first half of the year. There was continued exposure to the real estate and construction industry in all of the credit channels.

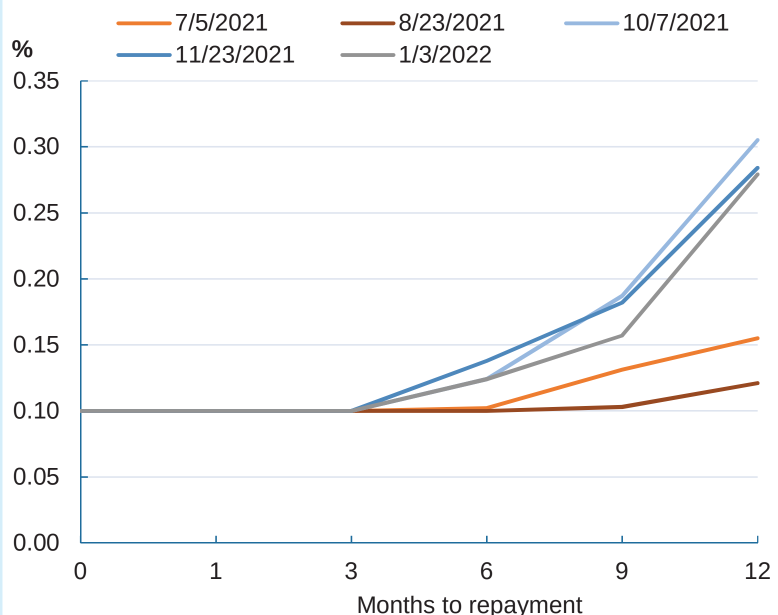
Table 3
Developments in the Domestic Asset Markets

	07/21	08/21	09/21	10/21	11/21	12/21
Yield to maturity (monthly averages, percent)						
3-month *makam*	0.0	0.0	0.0	0.0	0.0	0.0
1-year *makam*	0.0	0.0	0.0	0.0	0.0	0.0
Unindexed 5-year notes	0.5	0.4	0.5	0.7	0.7	0.5
Unindexed 10-year notes	1.2	1.2	1.3	1.4	1.3	1.2
Unindexed 20-year bonds	2.2	2.1	2.2	2.3	2.2	2.1
CPI-indexed 1-year notes	-2.0	-1.9	-2.2	-2.7	-2.6	-2.4
CPI-indexed 5-year notes	-1.4	-1.6	-1.8	-1.9	-1.9	-2.0
CPI-indexed 10-year notes	-0.7	-0.8	-0.9	-1.0	-1.2	-1.2
bonds rated AA (percentage points)[a]	1.3	1.3	1.4	1.2	1.2	1.3
Stock market (rate of change during the month)						
General shares index	-0.4	3.6	1.9	4.2	1.4	5.0
Tel Aviv 35 Index	0.5	3.9	2.5	2.7	0.7	6.1
Foreign exchange market (rate of change during the month)						
NIS/$	-0.8	-0.8	0.7	-2.2	0.1	-1.6
NIS/€	-0.7	-1.3	-1.6	-1.3	-2.6	-1.9
Nominal effective exchange rate	-0.7	-1.0	-0.8	-1.8	-2.4	-1.6

[a] The calculation is based on fixed-rate, CPI-indexed bonds, excluding convertible and structured bonds, with a yield of up to 100 percent and a term to maturity of more than 6 months.
SOURCE: Bank of Israel calculations.

The expectations in the Telbor market with regard to the Bank of Israel interest rate changed during the half year being surveyed, and in the fourth quarter they rose to a level that implied a probability of 100 percent that there would be at least one interest rate hike of 15 basis points within the coming year (to 0.25 percent) (Figure 14). This is the highest probability since the outbreak of the COVID-19 crisis in March 2020. Nonetheless, they declined toward the end of the period being surveyed. This trend was similar to that in other countries. The average forecast of the analysts in Israel also increased, although during most of the half year it implied a lower probability of an interest rate hike within the coming year relative to the estimates from the Telbor market. Nonetheless, toward the end of the half year being surveyed it also implied a probability of 100 percent of one interest rate hike of 15 basis points during the coming year, as did the forecasts from the Telbor market.

Figure 14
Forward Yield Curve According to Telbor Data on Interest Rate Decision Dates
July 2021–January 2022



SOURCE: Bank of Israel.

7. Fiscal policy

The cumulative deficit continued to decline during the half year being reviewed, and reached 4.6 percent, due to the continuing strong upward trend in tax revenues (even relative to the long-term trend) alongside a decline in Government expenditure—the result of a decline in COVID-19 expenditure and underperformance of the interim budget allocations and the relatively slow increase in expenditure even after the approval of the budget. The final proposed budget for 2021–22 was approved by the Knesset at the beginning of November and contributed to reducing fiscal uncertainty. The new deficit targets are 6.8 percent in 2021 and 3.9 percent in 2022, where the current forecast deficits for those years are lower.

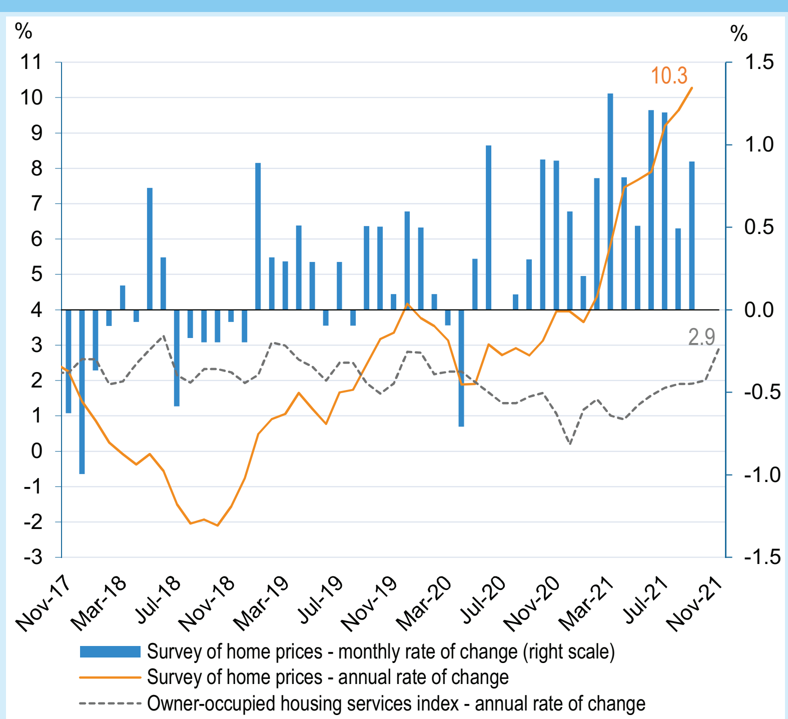
Due to the termination of the support programs for workers on unpaid leave and for the self-employed and businesses, COVID-19 expenditure declined substantially, from a monthly average of about NIS 6 billion during January–July 2021 to NIS 2 billion in August–November. Domestic government expenditure so far was about NIS 5 billion lower than the expected seasonal path according to the approved budget while cumulative domestic revenues since the beginning of the year are above the expected seasonal path by about NIS 5 billion, according to the updated Bank of Israel revenue forecast.

8. The housing market

The accelerated increase in home prices, a trend that began toward the end of 2020 and intensified in 2021, including during the half year being surveyed. The Committee discussed the rise in home prices that occurred partly as a result of the reduction in the purchase tax for investors in July 2020 and the discontinuation of the Buyer's Price program. During the half year being surveyed, new government programs went into effect. They are intended to halt the marked rise in housing prices and include raising the rate of the purchase tax on investors. Home prices have increased by 10.3 percent during the last 12 months (the September-October figure) (Figure 15), which is significantly faster than in previous years, and the decline in building completions continued. During the half year being surveyed, there has been some stabilization in the scope of transactions among all types of buyers, although the level of transactions remains high. Total mortgages stabilized at a high level during the half year being surveyed, which was a continuation of the trend since the beginning of 2021.

The rate of increase in rents remained relatively moderate during most of the half year being surveyed, as was the case in the first half of the year, and this was a continuation of the moderating trend during 2020 (Figure 15).[9] However, toward the end of the period being surveyed there was somewhat of an acceleration and by November the Owner Occupied Housing Services Index increased by an annual rate of about 2.9

Figure 15
Survey of Home Prices and Index of Owner-Occupied Housing Services
November 2017–November 2021



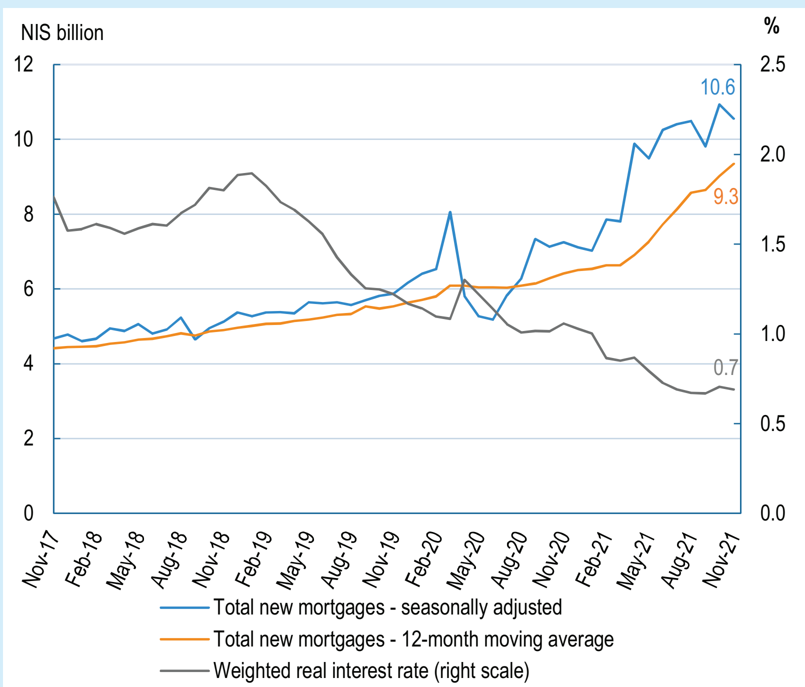
SOURCE: Based on Central Bureau of Statistics.

9 The cost of rent is reflected by the Owner Occupied Housing Services Index.

percent. The Committee members pointed out that the relative stability of the rate of increase in rents is mitigating the fear that the increase in home prices will be translated into an increase in the rate of inflation.

During the half year being surveyed, household credit risk continued to rise and particularly in the case of housing credit. Thus, there was an increase in the proportion of new mortgages in which the payment-to-income (PTI) ratio is between 30 and 40 percent and the loan-to-value (LTV) ratio is between 60 and 75 percent. The estimated size of the average mortgage rose consistently during the period being surveyed and the PTI ratio remained at a high level. The LTV ratio also remained high, partly due to the increase in home prices. The weighted real interest rate dropped during the period being surveyed, which is a continuation of the trend during the past two years (Figure 16). In January 2021, the Monetary Committee assessed that the Banking Supervision Department's Directive canceling the limit on the prime interest rate component in the mortgage mix[10] is expected to reduce the effective interest rate on these loans.

Figure 16
Total New Mortgages, and Real Weighted Interest Rate on Mortgages
November 2017–November 2021



SOURCE: Banking Supervision Department.

10 The cancelation of the limit on the prime interest rate portion for new mortgages went into effect on January 17th, 2021, and for the purpose of refinancing an existing mortgage on February 28th. There remains only the limit on the variable interest rate portion, according to which the portion of a mortgage that bears a variable interest rate of any type, and in particular the prime interest rate, is limited to two-thirds of the total mortgage.

The Research Department's macroeconomic forecast and the expected paths of inflation and growth

1. The Research Department's macroeconomic forecast

The Research Department published three forecasts during the half year being surveyed in parallel to the interest rate announcements in July and September 2021 and January 2022.

Table 4 presents the development of the macroeconomic forecasts during the half year being surveyed. According to the forecast in January 2022, GDP was expected to grow by 5.5 percent in 2022 (6.0 percent according to the July forecast) while the unemployment rate is expected to continue its decline in 2022 to about 4.8 percent in the fourth quarter, which is still above its pre-crisis level (of 3.8 percent). The debt-to-GDP ratio is expected to be 69 percent in 2022 (74 percent according to the July forecast). Inflation during the next four quarters (the last of which is the fourth quarter of 2022) is expected to be 1.6 percent. Added to the January 2022 forecast were forecasts for 2023, which also appear in Table 4.

Table 4
Research Department Forecasts
(rate of change in percent, unless otherwise noted)

Forecast for the years		**2021**			**2022**		**2023**
Date of forecast	**07/21**	**09/21**	**01/22**	**07/21**	**09/21**	**01/22**	**01/22**
GDP	5.5	7.0	6.5	6.0	5.5	5.5	5.0
Private consumption	10.5	11.5	10.5	8.0	7.0	8.0	5.0
Fixed capital formation (excluding ships and aircraft)	5.0	7.0	8.5	5.5	6.5	6.0	8.0
Public consumption (excluding defense imports)	4.0	4.0	2.5	2.5	2.5	2.5	3.0
Exports (excl. diamonds and startups)	6.0	7.5	8.5	4.0	4.0	3.0	5.5
Civilian imports (excl. diamonds, ships, and aircraft)	15.0	15.0	15.5	4.5	7.5	8.0	6.5
Broad unemployment rate (ages 15+, annual average)	10.8	10.4	10.2	6.4	5.8	5.4	4.5
Broad unemployment rate (ages 15+, year-end)	8.0	7.1	6.7	5.5	5.2	4.8	4.4
Government deficit (percent of GDP)	7.1	6.4	4.5	3.8	4.0	3.6	3.4
Debt to GDP ratio	74.0	73.5	69.0	74.0	73.0	69.0	69.0
Inflation[a]	1.7	2.5	2.4	1.2	1.6	1.6	2.0
Date of forecast	**07/21**	**09/21**	**01/22**				
Inflation in the coming year[b]	1.0	1.7	1.6				
Interest rate one year from now[c]	0.1	0.1/0.25	0.1/0.25				

[a] Average CPI inflation in the last quarter of the year compared with the average in the
[b] In the four quarters ending in the same quarter the following year.
[c] In the same quarter the following year.
SOURCE: Bank of Israel.

2. The expected paths of inflation and growth

During the half year being surveyed and subsequent to the exit from the third lockdown, the Israeli economy experienced a rapid recovery, and it appeared that economic activity was returning to normal. This can be attributed to the efficiency of the vaccinations, which reduced the rates of morbidity and allowed for the lifting of limitations on activity to a large extent. Later in the half year, the Delta variant of COVID-19 began to spread and the number of critically ill patients rose; this was accompanied by a third round of vaccinations. The economy was able to deal with this wave of infection with a minimum of limitations relative to the previous waves. Nonetheless, there is still a high level of economic uncertainty, due to the effects of the COVID-19 virus and in particular the spread of the Omicron variant toward the end of the half year being surveyed. Based on the Research Department forecast, the Committee estimates that GDP will grow at a rate of 5.5 percent in 2022.

With respect to inflation, the Committee members noted that inflation in Israel is significantly lower than in many other countries and that it is located within the target range, as are expectations. They also observed that so far there have been interest rate increases only in countries where inflation has deviated significantly from its target, while in Israel expectations derived from the markets are located within the target range and according to the forecast of the Bank of Israel Research Department and that of analysts, inflation is expected to be lower in another 12 months. The Committee felt that it is unlikely that there would be a surge in inflation and that in accordance with the Research Department's forecast the rate of inflation is expected to be 1.6 percent in 2022.

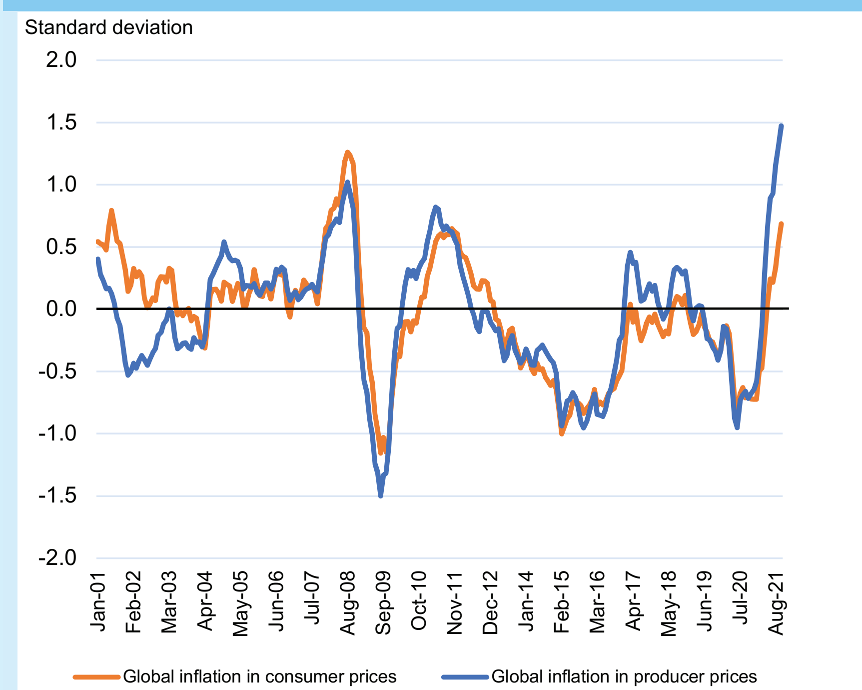
Box 1

Global Effects on Inflation in Israel

- **The recent upward trend in inflation in Israel can be almost entirely explained by global trends, which are the result of the recovery in demand and constraints on the supply side. Among the latter, we identified constraints in specific sectors, which account for about one-third of the increase in Israel's inflation since March.**

Against the background of increasing commodity prices worldwide, one explanation for this phenomenon is that this trend is also a result of global supply factors, which stem from bottlenecks created by the recovery of global demand. In this box, we test the extent to which the increase in inflation in Israel can be attributed to global trends deriving from supply side limitations.

Figure 1
Annual Global Inflation in Terms of Producer and Consumer Prices
January 2001 to October 2021



Global inflation rates in consumer prices and producer prices were measured via the first principal component of the inflation in those indices in 19 OECD countries. Inflation is presented after standardization (mean of 0 and standard deviation of 1).

During the previous 12 months, there has been in increase of about 14 percent in the Producer Price Index (PPI), which reflects the costs of production to manufacturers.[1] Currently the PPI is 9 percent higher than prior to the COVID-19 pandemic. There was a similar increase in other advanced economies, which also became more pronounced in recent months. The rise in producer prices is also large relative to the increase in the CPI. A long-term perspective on inflation in terms of producer prices and consumer prices in the advanced economies (hereafter: global inflation) reveals that to a large extent they tend to move together (Figure 1).

The opening of a gap between the variables may reflect one-time changes in producer prices, which perhaps have not been fully reflected in consumption prices. In order to shed light on this issue, we examined whether the trends in producer prices are the result of a shift that is shared by a wide range of commodities—which reflects, among other things, the demand side—or are concentrated in specific sectors, which can be attributed to the supply side. To this end, we used the framework presented in Sussman and Zohar (2018) and Alquist et al. (2020), which assumes that the simultaneous shift of numerous types of commodities in the same direction is most likely to stem from changes in global demand while any remaining residual can be attributed to supply factors. For the period of the COVID-19 pandemic, differentiating between demand factors and supply factors based on this assumption is particularly difficult, since it is reasonable to assume that there are disruptions on the supply side that are common to commodities in various sectors. These shared effects make it difficult to differentiate between supply factors and demand factors. Therefore, we will adopt a more limited approach by assuming that the simultaneous shift in commodity prices reflects both global demand and the broad effects from the supply side. The change in producer prices that is not explained by the common shift in commodity prices will be attributed to supply factors that are concentrated in specific sectors. This method will make it possible to derive a lower bound to the effect of global supply factors on inflation. Thus, it will be possible to identify the contribution of global inflation to inflation in Israel while separating between its two components: specific global factors and the global effects that are also felt by Israel, such as the recovery in economic activity and across-the-board effects that originate from the supply side.

To this end, we first identified the specific supply factors by running a regression in which global producer prices[2] are explained by the first principal component of a large variety of commodities in the energy, agriculture and manufacturing sectors.[3] This regression makes it possible to isolate fluctuations in producer prices that are the result of common volatility for a broad variety of

1 The analysis focuses on the Index of Manufacturing Inputs for the Domestic Market.

2 We defined global producer prices as the first principal component in selected OECD countries. The first principal component was calculated for monthly changes from January 2000 to February 2020 and similarly for consumer prices. For each country, we adjusted for seasonality, such that the shared factor relates to inflation without the seasonal component.

The selected OECD countries are Austria, Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, the Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, the UK and the US. Producer prices were not available for the US and therefore the principal component was calculated without the US.

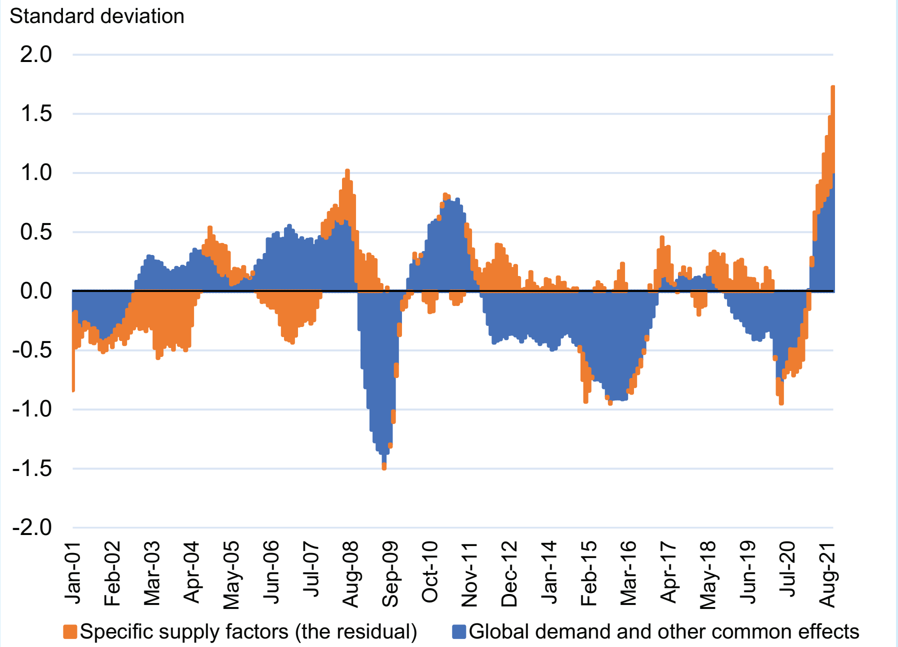
3 The principal components analysis was carried out for monthly changes in the prices of 34 commodities starting from 1992 according to the list presented in Alquist et al. (2020), which includes coffee, rice, sugar, beef, coal, aluminum, wood, rubber and cotton.

commodities while the rest will be attributed to fluctuations that are the result of specific supply factors.[4]

Figure 2 presents the historical decomposition of global producer prices between the portion explained by the principal component of commodity prices and the remainder which we attribute to specific supply factors.

This examination shows that the principal component of commodity prices, which also reflects, among other things, global demand, only explains about one-half of the increase in producer prices in recent months. The remainder, which is relatively large, will be attributed to specific supply factors, as already mentioned.

Figure 2
The Contribution of Global Demand and Specific Supply Factors to the Development of Annual Global Inflation in Producer Prices
January 2001–October 2021



Inflation in global producer prices was measured using the first principal component of inflation in producer prices in 19 OECD countries. Inflation is presented after standardization (mean of 0 and standard deviation of 1).

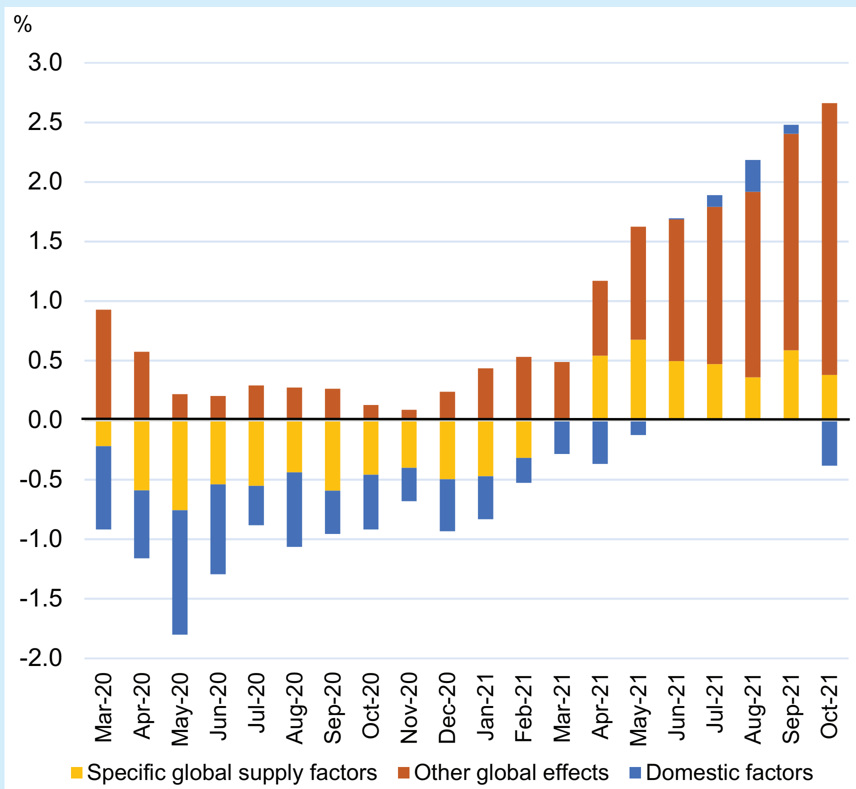
4 Specifically, we ran a regression in which global producer prices are explained by the first principal component of a broad variety of commodities in the domains of energy, agriculture and manufacturing (in monthly terms). In the basic version, we estimate the following equation:

$$(1)\quad {\pi_t}^{pc(PPI)} = \alpha + \sum_{i=0}^{12} \beta_i {pc_{i}}_{t-i}^{cmd} + \varepsilon_t$$

where ${pc_{i}}_{t}^{cmd}$ is global producer prices and ${\pi_t}^{pc(PPI)}$ is the principal component of monthly changes in commodity prices. We also examine more involved specifications in order to enable identification of nonlinear effects.

In the next stage, we examined whether specific supply factors are manifested in the global inflation in consumption prices. To this end, we ran a regression in which global inflation is explained by specific supply factors estimated in the preceding stage.[5] In the final stage, we ran a regression in which inflation in consumer prices in Israel is explained by the two components of global inflation: the portion explained by specific supply factors and the residual, which reflects the remaining global effects, including also global demand.[6]

Figure 3
Annual Inflation in Israel
March 2020 to October 2021



5 In particular, we estimate:

$$(2)\quad \pi_t^{pc(global)} = \alpha + \sum_{i=0}^{12} \beta_i \varepsilon_{t-i} + \epsilon_t$$

where $\pi^{pc(global)}$ are global consumption prices and is the residual from the estimation in the first stage, which we attributed to idiosyncratic supply factors.

6 In this stage, we estimate:

$$(3)\quad \pi_t^{local} = \alpha + \sum_{i=0}^{12} \beta_i \varepsilon_{t-i} + \sum_{i=0}^{12} \delta_i \epsilon_{t-i} + \tau_t$$

Since global inflation is exogenous to domestic inflation, we omit domestic factors that are likely to mediate the effect of the global component on domestic inflation, since the global component embodies the effect of global inflation on domestic inflation, including both its direct effect and its effect on other domestic variables that influence it (such as the exchange rate, the output gap and inflation expectations).

Figure 3 presents the results which indicate that the acceleration in inflation in Israel in recent months is almost entirely explained by global trends that are shared by Israel. It was also found that specific global factors on the supply side contributed about one-third of the increase in inflation in Israel since last March. This means that the contribution of all supply factors (specific and broadly based) is at least one-third of the inflation during that period. These results support the hypothesis that the increase in inflation is due to, among other things, constraints on the supply side. Other examinations show that specific supply factors tend to be fully passed through to domestic prices within three months.[7] Therefore, it is reasonable to assume that their effect will linger to some extent even after supply constraints have been resolved.

References:

Alquist, R., S Bhattarai and Coibion, O. (2020). "Commodity-price Co-movement and Global Economic Activity", Journal of Monetary Economics, Volume 112, June 2020, Pages 41-56.

Sussman, N. and Zohar, O. (2018). "Has Inflation Targeting Become Less Credible? Oil Prices, Global Aggregate Demand and Inflation Expectations During the Global Financial Crisis", BIS Working Paper No. 729.

7 Tests that we carried out showed that the transmission from global producer prices to consumption prices in Israel takes about three months. It appears that idiosyncratic supply factors, which were estimated from producer prices, are characterized by similar transmission.

Box 2

On the gap between one-year inflation expectations derived from the capital market (the breakeven inflation) and analysts' inflation expectations

Main findings

To estimate one-year inflation expectations, the Bank of Israel draws on several sources, including breakeven inflation, which is derived from the capital market[1], i.e., the gap in yields between indexed and unindexed government bonds, and analysts' expectations. Against the background of an increase in actual inflation, we have witnessed an interesting phenomenon in which one-year inflation expectations derived from the capital market (and those derived from the one-year inflation expectations from the interest rates of commercial banks) rose more than analysts' one-year inflation forecasts. As a result, the gap between them reached 1.1 percentage points at the end of October (Figure 1). Therefore, we hypothesized that the inflation risk premium could explain this gap. To test this hypothesis, we reestimated the model constructed by Nathan (2021), whose results were presented in the Bank of Israel Report for 2018 (Chapter 3), and indeed, according to the model, the large gap between one-year breakeven inflation and the analysts' forecasts is due to the inflation risk premium.

The economic theory and empirical findings from other countries[2] indicate that breakeven inflation for any term is composed of three components: expectations of inflation, liquidity gaps between indexed and unindexed bonds, and the inflation risk premium for that term.[3] Therefore, the change in breakeven inflation can result from a change in any one of those components. The goal of this box is, as mentioned, to present an estimate—which has already been presented and adopted by many central banks, including the Fed[4]—of the decomposition of the yield curve into inflation expectations and the risk premium and to use it to test whether the gap between analysts' forecasts and breakeven inflation is a result of the inflation risk premium.

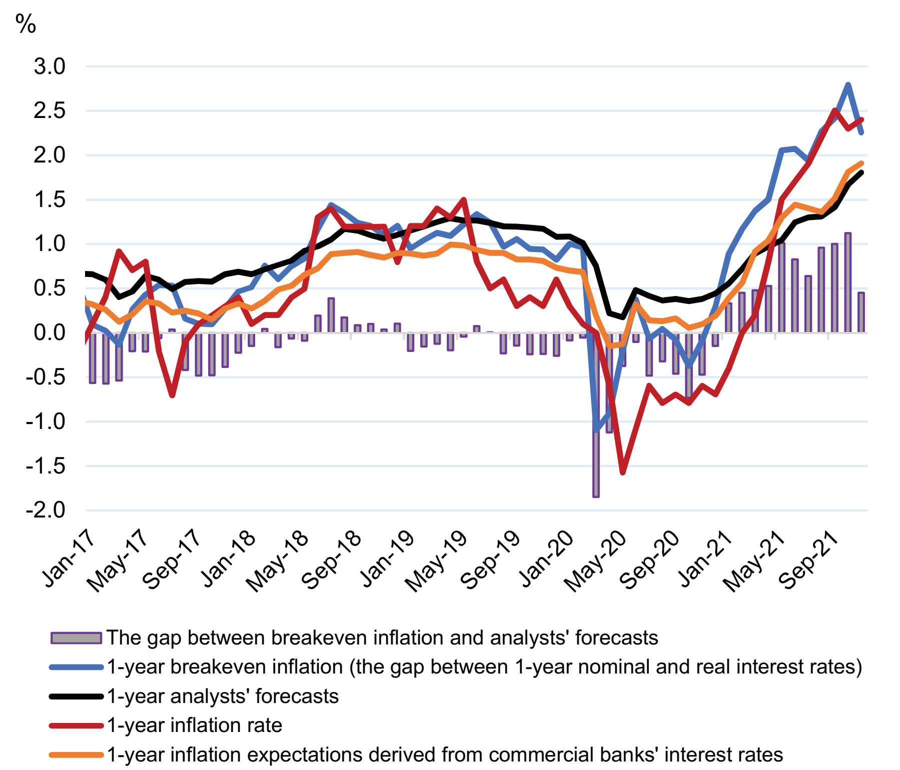
1 The concept of "breakeven inflation" is also known as inflation expectations derived from the capital market. To avoid confusion, we use the term breakeven inflation when we want to differentiate between inflation expectations and the inflation risk premium.

2 For example, D'Amico, Kim and Wei (2018).

3 The liquidity gaps are small in Israel and therefore are not estimated as part of the model in Nathan (2021).

4 The Fed has a number of models that use the type of model presented here (see, for example, Kim and Wright 2015 and D'Amico, Kim and Wei 2018). They are differentiated from one another by, among other things, estimation method. The model presented here is similar to that of D'Amico. Kim and Wei (2018).

Figure 1
Proxies for Inflation Expectations
(January 2017–November 2021)



SOURCE: Bank of Israel.

The inflation risk premium

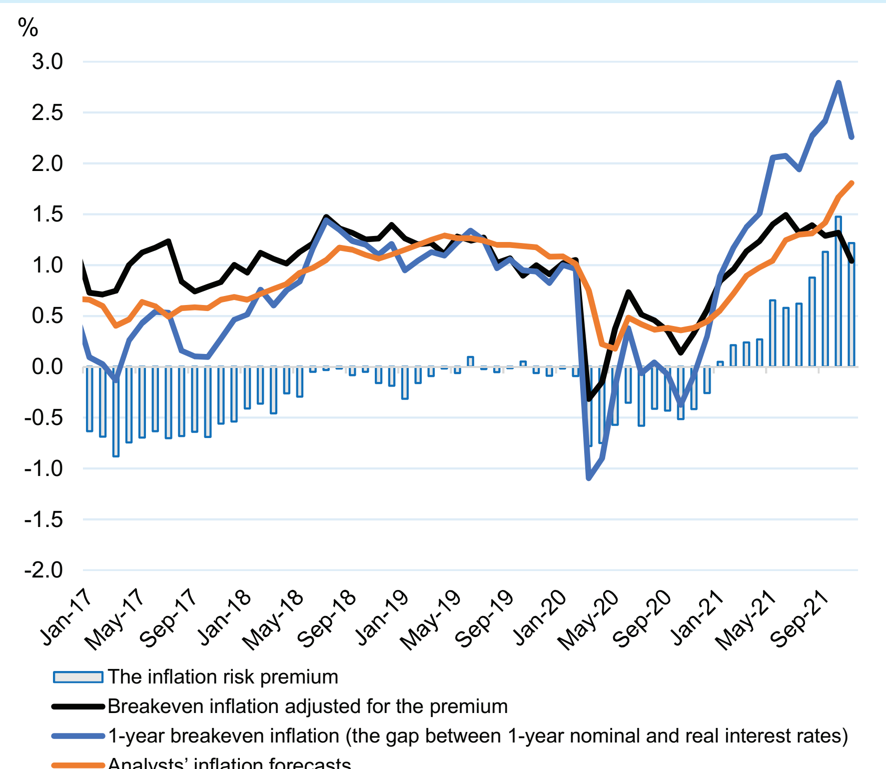
The future prices of indexed and unindexed government bonds are uncertain and change according to the interest rate that will prevail in the economy in the future. Therefore, investors demand a risk premium on those bonds. For unindexed government bonds, there is an additional source of uncertainty: the real yield on that bond (adjusted for inflation), which is uncertain since it is dependent on the rate of inflation. This is in contrast to the yield on an indexed government bond. Therefore, the holder of an unindexed bond demands compensation for this risk, referred to as the inflation risk premium in the literature.

The inflation risk premium can be positive or negative according to its expected correlation with future consumption. If future inflation is positively correlated with future consumption, the investor will be prepared to pay more for holding an unindexed government bond than holding an indexed bond of the same term. This means that the inflation risk premium will be negative because an unindexed bond provides insurance for a state of the world in which consumption is low. In this case, the real income that he will receive on the bond will be high exactly when consumption is low, a situation that will enable him to consume more. In contrast, if future inflation is negatively correlated with future consumption, he will demand compensation for holding the bond since it does not provide insurance for its future income. In other words, the inflation risk premium will be positive.

The findings

Figure 2 presents one-year breakeven inflation; breakeven inflation less the inflation risk premium, reflecting inflation expectations; the analysts' one-year inflation expectations; and the one-year inflation risk premium, as derived from the model. First, it can be seen that the inflation risk premium was negative during almost the entire sample period.[5] Furthermore, a significant decline can be seen in inflation expectations and the inflation risk premium during the Corona crisis.

Figure 2
Breakeven inflation, inflation adjusted for the premium, analysts' forecasts and the inflation risk premium
(January 2017–November 2021)



SOURCE: Bank of Israel

5 For a discussion of the inflation risk premium during part of this period, see Chapter 3 of the Bank of Israel Annual Report for 2018.

It is also interesting that the increase in breakeven inflation, which began according to the model at the beginning of 2021, is composed of an increase in inflation expectations adjusted for the inflation risk premium, together with a significant increase in the inflation risk premium, which became positive in 2021 after having been negative in preceding years. Essentially, one-year inflation expectations, adjusted for the premium, rose toward the end of 2021 to only about 1.3 percent. The conclusion reached by the model is, therefore, that the increase in breakeven inflation is due to a large extent to the inflation risk premium.

The inflation risk premium

The one-year analysts' forecasts support the findings produced from the model. Thus, their estimate, which is meant to reflect the inflation expectations derived from the capital market, is close to that of breakeven inflation adjusted for the inflation risk premium,[6] a finding that supports the result of the model. Recently, both have shown an increase in one-year inflation expectations that is far more moderate than breakeven inflation.

What can explain the increase in the one-year inflation risk premium and its becoming positive during 2021? The consistent increase in the premium indicates that investors expect the correlation between consumption and inflation to be negative in the future and that it will increase during 2021. This finding is in line with the increasing dominance of supply shocks. That is, investors expect price increases due to reduced supply that will be accompanied by low consumption, which is in line with reports of supply chain disruptions.

References:

Bank of Israel (2019), Annual Report for 2018.

D'Amico, S., D. H Kim & M. Wei (2018). "Tips from TIPS: The informational content of Treasury Inflation-Protected Security Prices", Journal of Financial and Quantitative Analysis, 53(1), 395–436.

Nathan, Daniel (2021). Decomposing the Israeli Term Structure of Interest Rates. Bank of Israel working paper.

6 We emphasize that the model does not use analysts' inflation forecasts in order to estimate the inflation risk premium. The model uses as input the yields of the makam curve, the real and nominal government yield curve (the zero curve), the analyst's forecasts of the Bank of Israel interest rate for one month and one year and actual inflation. In order to estimate the premium, the model "constructs" a forecast of interest rates and inflation on the basis of past data (the input).